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ABSTRACT

With the pervasiveness of television, especially for children, visual literacy is a growing concern. Television should be regarded as part of a potential solution to the country's need for improved education. "Sesame Street" has proved that children do learn from television, that active interaction is not always necessary for learning, and that children have developed different expectations about learning. Children's acquisition of the basic cognitive operations may be changing due to television, particularly when animation is used. "The Electric Company's" method of teaching reading, for instance, uses animated cartoons to show the connection between the written and spoken word, a concept not so easily explained in the classroom. Abstractions may also be communicated without the use of language. Given the influence of television, certain issues need first consideration: a reevaluation of cognitive growth in young children; an analysis of the nature of visual literacy acquired from television; and an examination of exactly how television communicates, influences, and causes change, and what its long-term effects are likely to be. (LS)

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Visual Literacy: Some Lessons From Children's Television Workshop

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It is generally agreed that our current interest in visual literacy, and the apparent fruitfulness of cultivating it in children, is a direct outgrowth of the television phenomenon. Television has quietly, and relatively rapidly, become pervasive in our land and one of the most significant forces in the lives of our children. The statistics are awesome: by the time a child in the United States enters first grade, he is likely to have spent more time watching television than he will spend in the classroom during his entire four years at college (Looney, 1971). About 96% of households in the United States have television sets, and among households with preschool children, the percentage is even higher.

Until quite recently, and this attitude still persists widely, educators have viewed television as part of the problem in educating children, particularly disadvantaged children; they have certainly not thought of television as part of a potential solution to the country's need for improved education.

Sesame Street did a lot to change that. Before Sesame Street appeared on the scene, most mothers of young children had favorite anecdotes as evidence that their children were picking up a lot of information from television. Yet it was Sesame Street, and the careful evaluation of its effects by ETS, which provided impressive solid evidence that young children can and do learn a great deal from this medium, absolutely without coercion. We have, in fact, just learned that in the most recent re-norming of the Stanford-Binet, the standard intelligence test for children in the United States, the average four and five-year-old in 1972 knew more than did his 1960 counterpart. These 1972 four and five-year-olds are the first "Sesame

Street" generation. We are now looking into this phenomenon more thoroughly, but it seems certain that television, and perhaps Sesame Street has played an important role in giving preschoolers access to information not readily available in 1960.

The impact of Sesame Street has made it much harder to ignore the influence of television on children. There are, of course, still many people perfectly willing to acknowledge the miracle of Sesame Street who fail to realize that all television is teaching things to children at almost the same rate that Sesame Street is doing it, albeit with less design. Every day our children are learning from the television programs they are viewing what is good to eat, what to drink when thirsty, how to cure a headache, what the inside of an airplane looks like, how people relate to each other, what the surface of the moon looks like, and a myriad of other things, some important, some trivial, some useful, some clearly harmful. Yet the implications of what we now know about the ability of television to teach young children are still wider than this.

For one thing, it has been part of educational dogma for some years now to insist that little children can learn very little unless they interact directly with their learning materials - - building, manipulating, writing, moving. Indeed the most severe criticisms of Sesame Street when it was first proposed were from developmental psychologists and experts in early childhood education, who claimed that television, as a "non-interactive" learning mode, would not be very successful in teaching young children, that whatever it did succeed in teaching would be learned by rote, and therefore would be "bad" for children and not contribute significantly to cognitive growth.

Though we are far from understanding the process entirely, we now know that young children, though they may occasionally sit alarmingly still, clearly are not soaking up television as though they were little human sponges. They are interacting with the TV set, sometimes overtly (by talking back to it, dancing to the music, tracing letters in the air with their fingers), and sometimes covertly (rehearsing things in their heads, anticipating what actors or objects will do next, solving problems posed on the screen, extracting commonalities from a series of visual displays. The fact that this is happening clearly forces us to rethink our conceptions of the way young children learn and of the ways we can best teach them. Developmental psychologists and early childhood educators strongly influenced by Piaget's formulations, have been reluctant to engage in such major reformulation, but this is slowly changing (c.f. Fowles and Voyat, 1974). It is probably also true that teachers are now beginning to enter our elementary schools who, at 20 to 25 years of age, are themselves members of the "television generation" and may better understand the scope of its influence on their pupils than the generation of teachers who went before.

A second set of implications, in reality a facet of the first, has to do with actual changes that televison may be bringing about in children. There are several areas of possible change, some of which are already under study.

For example, Gavriel Salomon (1974), using a population of Israeli children (who have relatively restricted access to TV) found that regular exposure to Sesame Street lowered persistence to repetitive, school-like tasks. The implications of findings like this for tolerance of classroom routine among children who are virtually television addicts need not be belabored.

Sesame Street, and new programs inspired by it, have led children to expect learning to be enjoyable. These children clearly bring different expectations to school than did their older brothers and sisters. Certainly they are not

anti-learning; they are all for it. But they do not expect it to be rigid, dry, humiliating, or fraught with failure, the negative experiences so often encountered in school, particularly by the poor, the black, the bilingual, or the very active.

Television may be altering the course of acquisition of the most basic cognitive operations in children. The rate at which and the order in which children acquire basic cognitions about the workings of the physical and social world--notions like object constancy, conservation of size, physical causality and social norms--may have changed. Because television provides children with a simplified, repetitive, exaggerated world, some rather abstract constructs may emerge sooner than they used to for the child who had to abstract them from the non-TV environment, where behavior of people and things is less consistent and more complex. Animation may be a particularly significant factor in this consistency. Animated cartoons have powerful appeal for children. They also tend to reduce all objects and processes to their bare bones. Furthermore animation is the clearest illustration of the property of visual media described by Arnheim (1974) as "...translat(ing) nonvisual facts into visual ones, and thereby giving them sensory concreteness." This concreteness makes concepts not before accessible to young television viewers well within their grasp.

CTW's program "The Electric Company", which uses television to teach reading, provides a good example of how this can occur. One of the most important conceptual constructs in learning to read successfully is the principle that print represents speech and, in English at least, "maps"

speech directly in a particular fashion--from left to right, phoneme by phoneme. This principle is very difficult to describe to a young child, or even to illustrate with static teaching materials. However, an animated cartoon in which the speech of each character appears in a comic book style speech balloon, precisely in synchrony with the words spoken on the sound track, makes this principle clear. The child may not be able to articulate the principle, however, which brings us to the final possible implication of being a "television child".

Television may be prying loose processes of cognition and abstract learning from their close alliance with language. Language has heretofore been seen as the major tool of higher intellectual activity in man. As the above discussion suggests, however, children can be transported by television, particularly by stylized animation, directly into the realm of abstraction, without so much as a word being spoken. It is clearly possible that by focusing our evaluation and our teaching procedures on verbal skills, our schools may not be taking young children as far into the realm of abstract reasoning and problem solving as they are in fact able to go.

Most of this discussion has been speculative; yet the questions we raise are all researchable. Although these are by no means the only relevant questions in the area of visual literacy, they are the most urgent ones to emerge from our experience in studying the interaction between the child and television. It is necessary to emphasize as well that, however important the impact of television, it is only a part of the child's

environment, and perhaps a very small part when considered in the context of the present school experience.

Within these limits, then, the following issues seem to be of first priority:

We need a general re-evaluation (Piaget redux) of the course of cognitive growth in young children. We need to start afresh in determining what cognitive operations are acquired at what age, what is the course of vocabulary growth, of stages of problem solving ability, of moral and social development.

We need to describe in detail the nature of the "visual literacy" that children are so evidently acquiring from television. As Salomon (1974, op. cit.) describes it:

> "The development of a new technology leads, after a certain period of time to the development of a new symbol system which partly at least, is uniquely suited to that technology."

This is certainly true of television. However, the development of that symbol system has proceeded helter skelter. Rare is the television producer who is both self-conscious and articulate about the "language" he uses in creating a television program. There has been virtually none of the careful technical analysis of television that has been devoted to prose, poetry, painting, and in the last quarter century, to film. What is sorely needed is such an analysis of the structure of television communication before we can even begin to look at the question which is the real one here: how and when do children acquire mastery of the structure of television communication, and how does that internalized structure generalize to their processing of non-television aspects of the environment?

The latter question is particularly vital to the practical matter of education. If children are taking what they learn from television and

applying it more generally, we need to adapt all our educational tools to this new mode of intellectual processing. If, on the other hand, children are becoming highly literate in the "language", but limit their application to television itself, we need to think about using television as a primary teaching vehicle in the schools in order to better reach the children we are now failing to educate.

Finally, we need to know exactly how television communicates for another reason. Since it is by now clear that television is a powerful environmental force, we must also recognize that by definit ion it is a powerful instrument for change. The Surgeon-General's report of 1972 was eloquent testimony to our fear that this instrument of change is presently out of control, and perhaps doing damage that we do not even know how to measure. In order to control television and make it serve constructive ends in both the educational and the social realms, we need to understand the variable of television communication. At CTW, we have begun to do this in a narrow domain; that is, we have begun to specify, using research techniques we have painstakingly developed, the relationship between certain features of an instuctional segment of Sesame Street or The Electric Company and the child's response. But when it comes to cumulative, long term effects, we, like everyone else, are astonishingly ignorant, a status none of us can afford for much longer.

December, 1974

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